Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Initially, Applicants acknowledge with appreciation the PTO paper mailed April 20, 2004, withdrawing the finality of the rejection.

Claim 1, which is the only independent claim under consideration, has been amended to require that solidification to mold the slurry is through a method of colloid process, which is supported by the disclosure in the paragraph bridging pages 10 and 11 of the specification. The significance of this limitation will be discussed below in connection with the prior art rejection.

New claims 12 and 13 have been added to the application, limiting the average particle size of the non-ferromagnetic powder. Claim 12 limits the average particle size of the non-ferromagnetic powder to less than 1.0 μm, in consideration of Examples 1-13 in the specification; and new claim 13 limits the maximum average particle size to 0.69 μm, which is the average particle size in Example 8.

The rejection of claims 1-3 under 35 U.S.C. §103(a) as being unpatentable over Giessen et al. in view of Boutaghou et al., both newly cited, is respectfully traversed.

Applicants take the position that the subject matter of amended claim 1 as set forth above is fundamentally different from the Giessen et al. reference, since the present invention requires a colloid process (for example, slip casting) to solidify to mold the slurry in a magnetic field. Dispersion of particles is important for making this technique of solidifying to mold possible, because it is important that van der Waals' force and electrostatic repulsion are controlled since dispersion of particles is governed by these forces, and external force, such as gravity, can be ignored. On the other hand, Applicants note that Giessen et al. rely on gravitational forces to settle the crystals in the suspension (column 4, lines 29-32).

For example, slip casting is the technique of solidifying to mold in which only the solvent in the slurry is absorbed into a porous mold and the particles solidify to mold, whereas in Giessen et al. the solvent is merely allowed to evaporate (column 4, line 40). It is as if a special external force was acting on the particles in the direction of the slip cast, where the direction of the slip cast is shown

in the Figures associated with the Examples of the present application. This force for orientation of the particles in a specific direction by slip casting does not appear to include gravity as in Giessen et al. That is, this reference does not disclose or suggest the use of a force equivalent to the external force which aligns the particles through a method of colloid process as in the present invention. Spherical particles cannot be subjected to multi-axis orientation since they are isotropic.

Another advantage of the colloid process, and specifically the slip casting method, is that it makes it possible to manufacture a high-density molded product in a short period of time, and also makes it easy to enlarge the size of the molded article.

Applicants note that highly oriented alumina, for example, can be obtained when solidification of the slurry is performed under controlled conditions, such as through a colloid process as in the present invention, whereas such highly oriented alumina is not obtained in the absence of controlled solidification. More specifically, as a result of evaluating the orientation of sintered products which are fabricated from controlled solidification versus solidification which is not controlled, under a magnetic field with the same conditions, 97 % orientation is achieved with controlled solidification as compared to 7.4% orientation where the solidification is not controlled.

Furthermore, even though particles which have anisotropy in shape as in Giessen et al., can also be employed in the present invention, the use of such particles is not sufficient, by itself, to achieve a dense sintered product unless the solidification to mold the slurry of particles is conducted through a method of colloid process as in the present invention.

Referring to new claims 12 and 13 set forth above, Giessen et al. fails to suggest the use of non-ferromagnetic powder having an average particle size of less than 1.0 μm (claim 12), or even more specifically, 0.69 μm or less (claim 13), and for this additional reason, the subject matter of each of these claims is considered to be patentable over Giessen et al., which disclose the use of particles with diameters in the range of 1-30 μm (column 4, lines 55-57).

The Examiner applies the Boutaghou et al. reference for its disclosure of zinc oxide and aluminum nitride, taking the position that it would have been obvious to one skilled in the art to use these materials in the process of Giessen et al. This particularly relates to claim 3 of the present application. However, even if the references were combined in the manner suggested by the

Examiner, the result of such combination would still not suggest the subject matter of amended claim 1, or claims 2 and 3 which are dependent thereon, for the reasons set forth above concerning the disclosure of the Giessen et al. reference.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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